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10/700,120	11/03/2003	Donald G. Parent	DTW-108J	5112

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Iandiorio & Teska
260 Bear Hill Road
Waltham, MA 02451-1018

EXAMINER

BUEKER, RICHARD R

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/700,120

Applicant(s)

PARENT, DONALD G.

Examiner

Richard Bueker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/2/05
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____

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Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 15, line 1, the phrase "for applying a coating a plurality of insulative substrates" is unclear, and "to" should be inserted after "coating".

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 7, 11 and 15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Statnikov (5,741,405) (see Figs. 1-3), who discloses a system for coating a component including a vacuum chamber, at least one PVD station (sputter coating station) as recited in claim 1, at least one cooling station as recited in claim 1, and a component handler designed to move the component proximate the PVD station and then the cooling station. The handler is programmed to "automatically bring the at least one component proximate the at least one physical vapor deposition station until the at least one insulative component is partially coated to a predetermined thickness and then proximate the at least one cooling station before thermal damage can occur to the at least one insulative

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component and until the at least one insulative component is sufficiently cooled and to then switch between the at least one physical vapor deposition station and the at least one cooling station until the desired coating thickness is obtained". Regarding the Fig. 1 embodiment of Statnikov, it is noted that each PVD station is also a cooling station, and as such, each of these PVD/cooling stations reads on both the PVD stations recited in applicant's claims and the cooling stations recited in applicant's claims. Statnikov's Fig. 1 also includes stations 37, 38 and 39 for cooling without PVD. Regarding claims 2 and 3, the arrangement of stations shown in Statnikov's Fig. 1 can be described both as "arranged circumferentially" and "arranged circumferentially". Regarding claims 6 and 7, see Col. 1, lines 58-62 of Statnikov.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Statnikov in view of Hughes (5,181,556), who teaches (col. 1, line 53 to col. 2, line 26) that a gas cooling station with a heat sink in a subchamber is preferable to a solid contact cooling station, and it would have been obvious to one skilled in the art to substitute such a gas cooling station of the type taught by Hughes for a cooling station such as station 38 of Fig. 1 of Statnikov or the cooling station of Fig. 2 of Statnikov.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Statnikov in view of King (4,514,636) (see abstract, Fig. 4 and col. 1, lines 30-39), who teaches that a gas cooling station with a heat sink in a subchamber is preferable to a solid contact cooling station, and it would have been obvious to one skilled in the art to substitute such a gas cooling station of the type taught by King for a solid contact

cooling station such as station 38 of Fig. 1 of Statnikov or the cooling station of Fig. 2 of Statnikov.

Claims 8, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Statnikov taken in view of Dee (4,849,250) and Bonyhard (5,026,470). Dee (Figs. 4 and 5, col. 2, lines 21-25 and col. 3, lines 1-2) teaches that a tray can be use as a substrate holder for a plurality of substrates in a rotary sputtering apparatus of the type taught by Statnikov. It would have been obvious to modify the apparatus of Statnikov's Fig. 3 to adapt it for use with a plural substrate tray of the type taught by Dee for the desirable purpose of increasing productivity of the apparatus by increasing through-put. Bonyhard (Figs. 4 and 5, col. 2, lines 59-64 and col. 3, lines 38-40) is cited to show that a plural substrate tray can be provided with cooling means as required by Statnikov's Fig. 3 embodiment.

Claims 8, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Statnikov taken in view of Gesche (5,538,610) (Figs. 1-4) and Hedgcoth (4,894,133) (Figs. 1-2) who both teach the use of a plural substrate tray to sputter coat plural substrates simultaneously to improve through-put of a coating apparatus. It would have been obvious to modify the apparatus of Statnikov's Fig. 1 or Fig. 3 to adapt it for use with a plural substrate tray of the type taught by Gesche and Hedgcoth for the desirable purpose of increasing productivity of the apparatus by increasing throughput.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Statnikov taken in view of Gesche (5,538,610) (Figs. 1-4) and Hedgcoth (4,894,133) and taken in further view of Hughes (5,181,556), who teaches (col. 1, line 53 to col. 2,

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line 26) that a gas cooling station with a heat sink in a subchamber is preferable to a solid contact cooling station. It would have been obvious to one skilled in the art to provide a gas cooling station of the type taught by Hughes for cooling a plural substrate tray of the type taught by Gesche and Hedgcoth, because Gesche and Hedgcoth teach that their plural substrate processing apparatus is applicable to all conventional processing steps, which includes cooling as taught by Statnikov.

The indicated allowability of claim 5 is withdrawn in view of the newly cited reference to Vanden Brande (6,337,005). A rejection based on the newly cited reference follows.

Claims 1-7, 11 and 13-15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Vanden Brande (6,337,005) (see Figs. 3 and 4 and col. 5, lines 12-19). Vanden Brande discloses an apparatus for coating a plastic film (col. 1, lines 32-36), which is an insulative component as presently claimed. The apparatus includes plural PVD stations (see element 3 of Fig. 3) that alternate with reaction stations (7 of Fig. 3). All of the stations 3 and 7 are provided with cooling drums 17 that are heat sinks (see col. 5, lines 12-19), and therefore all of the stations are also cooling stations having heat sinks. In Vanden Brande's Example 3 (see col. 6, lines 43-52), the apparatus of Fig. 3 is described as having 10 successive passages through a PVD zone and a reaction zone, for the purpose of partially coating the substrate in each PVD zone until the desired coating thickness is obtained as claimed by applicant. Regarding claims 4 and 14, each chamber 7 of Fig. 3 of Vanden Brande is a subchamber, and Vanden Brande teaches

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(see col. 3, lines 58-62, for example) that the subchamber 7 is provided with means for filling the subchamber with nitrogen gas, which is inherently a high conductivity gas. As evidence of that fact, it is noted that King (4,514,636) (see Fig. 5 and col. 3, lines 29-33 of King) teaches that nitrogen gas is a high conductivity gas. Regarding claims 5, 13 and 14, it is noted that as the substrate is passed through the apparatus of Fig. 3 of Vanden Brande, it is formed into a shape that includes a cavity and the cooling drum heat sink 17 is shaped to fit within the cavity. It is noted that while the apparatus described in Example 3 of Vanden Brande is described as being used to coat a flexible sheet of aluminum, it would inherently or obviously also be capable of coating an insulative component such as the plastic film suggested by Vanden Brande at col. 1, lines 32-36. Also, the process of Example 3 of Vanden Brande is inherently or at least obviously could be an automatic program as claimed.

Applicant's arguments with respect to Statnikov have been considered but are not persuasive. First, it is noted that the rejection over Statnikov in the first office action referred to Figs. 1-3 of Statnikov. Statnikov describes two embodiments. Fig. 1 illustrates his first embodiment, and Figs. 2 and 3 illustrate his second embodiment.

Regarding his second embodiment, Statnikov (see col. 6, line 48 to col. 7, line 8, for example) teaches that a process of coating a substrate in the apparatus of Figs. 2 and 3 includes a plurality of complete rotations of the substrate through the apparatus. This process includes (1) a step of partially coating the substrate at the sputter coating station (51), (2) a step of moving the substrate from the sputter coating station to a cooling station (53, 54 and 55), (3) a step of moving the substrate from the cooling

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station back to the sputter coating station, (4) a step of again partially coating the substrate at the sputter coating station (51), and (5) a step of again moving the substrate from the sputter coating station to the cooling station (53, 54 and 55). The apparatus of Statnikov's Figs. 2 and 3 anticipates applicant's claim 1.

Secondly, Statnikov's Fig. 1 embodiment anticipates applicant's claim 2, because each station 21, 22, 23, 24, 25 and 26 of Statnikov includes both a sputter coating apparatus and a cooling apparatus. Therefore, each one of the stations 21-26 is a sputter coating station, and each one is also a cooling station. Station 22 is therefore a cooling station that is positioned between sputter coating stations 21 and 23, and station 25 is a cooling station positioned between sputter coating stations 24 and 26. Also, turnaround compartment 8 is a cooling station that is positioned between sputter coating stations 23 and 24.

Applicant has argued that "Statnikov does not teach a physical vapor deposition station, and a cooling station (i.e. a separate element) at all". It is noted, however, that the claims do not require that the claimed cooling stations must be without a sputtering apparatus. The presence of a sputter deposition means at the cooling station is not excluded by the present claim language. The present claims use inclusive "comprising" language that does not exclude elements other than those recited in the claims. Applicant's own specification (see page 17, lines 14-16) specifically states that the word "comprising" as used by applicant is intended to be interpreted broadly and comprehensively and not limited to any physical interconnection.

Applicant is advised that should claim 5 be found allowable, claim 14 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).


Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on June 2, 2005 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parvis Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Richard Bueker
Primary Examiner
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